SECTION C Descriptions and Specifications

1.0 INTRODUCTION

The contractor shall provide engineering, technical, logistic and installation support services, including the engineering and technical support personnel and facilities, required to support all U.S Navy Submarine and Surface Ship Hull, Mechanical and Electrical Systems. The contractor shall be required to provide support to the Program Office and the Program Field Offices. Locations include, but are not limited to: Norfolk, VA; Mayport, FL; Kings Bay GA; Pascagoula MS; Ingleside TX; Bath, ME; Bangor, ME; Everett, WA; San Diego, CA; Bremerton, WA; and Pearl Harbor, HI. In addition, the contractor shall provide support to foreign Navies via the Foreign Military Sales (FMS) program. Foreign countries currently engaged are Spain, Egypt, Australia, Turkey, Pakistan, Poland, and Greece. This Statement Of Work (SOW) outlines general Contractor requirements and will be supplemented by specific work statements in individual delivery orders. Delivery orders will vary in the level and complexity of requirements, from the full scope of the technical services of this SOW to portions of the SOW only.

2.0 BACKGROUND

The mission of the Carderock Division, Naval Surface Warfare Center (CD-NSWC) is to provide research, development, test and evaluation, fleet support, life-cycle management, in-service engineering, and test ranges for surface and undersea vehicle Hull, Mechanical and Electrical (HM&E) systems. As part of this mission, Code 934 of the Propulsion and Power Systems Department provides support for all U.S. Navy Submarine and Surface Ship Electric Power Systems and Gas Turbines.

As a result of decreasing ship levels and increasing commitments of the remaining fleets, the Electric Power Systems Branch requires contractor assistance in the following areas:

- ? Diesel and Steam Electric Power Systems
- ? Gas Turbine Electric Power Systems
- ? Electric Power 400Hz and DC Systems
- ? Advanced Electrical Systems.

To execute its responsibilities, the Power Systems Branch requires a responsive and high quality engineering and technical support contractor.

This SOW includes, but is not limited to, new system engineering, technical and installation support but also existing system life cycle support and engineering.

3.0 SCOPE OF WORK

The contractor shall provide engineering, technical, logistics, test and evaluation and installation support for Electric Power Systems aboard U.S. Navy Submarines and Surface Ships. This SOW describes services to be applied via individual delivery orders to specific requirements. Work performed under this contract will include, but not be limited to:

- ? Maintenance Engineering
- ? Systems Engineering
- ? Logistics Engineering
- ? Test and Evaluation Engineering
- ? Installation Support.
- ? New Acquisition Support

3. 1 Maintenance Engineering

The contractor shall perform independent analyses and technical studies and provide engineering and technical services in the area of mission related maintenance. Areas of particular involvement may include:

- ? Investigation/remediation of historical failures for submarine and surface ship electrical systems and equipment.
- ? Review and evaluation of existing Navy maintenance procedures,
- ? Performing life-cycle cost analysis and return on investment studies,
- ? Reviewing and updating existing maintenance management and planning documents and providing technical support for their implementation, and
- ? Providing technical support in response to Fleet and Naval activities requirements.

3.2 Systems Engineering

The contractor will assist the government with the design, installation and validation of new, improved or modified Electric Power Systems by analysis and technical studies. Areas of particular involvement may include:

- ? Analyzing operational and maintenance requirements,
- ? Performing Failure Modes and Effects Analyses,
- ? Developing installation plans,
- ? Recommending, performing and supporting redesign, modification or alteration of hardware or system,
- ? Conducting systems engineering studies for ship/systems integration,
- ? Developing new maintenance and calibration procedures,
- ? Formulating and developing test plans and procedures for new/modified systems/equipment, and
- ? Conducting review and analysis of engineering changes to determine the potential impact to the system being changed and/or interfacing systems. Determine the impact to system operability, maintenance, documentation, testing and certification requirements.

3.3 Logistics Engineering

The contractor shall provide logistics support for the development, revision and maintenance of ILS documentation for all submarine and surface ship electrical systems, to ensure that accurate and adequate logistic information is delivered. Provide impact assessments for the ILS elements of the packages. ILS information will include (but shall not be limited to):

- ? Development of Acquisition Plans, Integrated Logistics Support Plans (ILSPs), Naval Training Systems Plans (NTSPs), Computer Resources Life Cycle Management Plans (CRLCMP), Integrated Test Plans and Return on Investments (ROI) studies for the pilot/lead ship of class.
- ? Researching and reporting on commercially available predictive/condition based diagnostics and applications that can be integrated with existing systems that will aid ship’s force and have appositive payback in maintenance resources.
- ? Making ships visit’s to design layout plans for installation.
- ? Procuring miscellaneous parts and equipment to support prototype installation, receipt and stowage of these parts with Government Furnished Equipment (GFE) as required.
- ? Developing complete Integrated logistic Support (ILS) packages. This includes development of documentation in interactive electronic media such as Interactive Electronic Technical Manuals (IETMs) and computer based training modules that pertain to the condition assessment system and its associated equipment.
- ? Developing specific configuration management requirements for hardware and software development and production contracts.
- ? Establishing life cycle status records for change documentation and contract delivery schedules to update inventory data, project the impact of future deliveries on installation scheduling, and forecast

installation, manpower, and funding requirements.
- ? Planning, coordinating, and participating in the physical and functional configuration audits.
- ? Assessing submissions of logistics data items.
- ? Preparing technical input for Configuration Control Board (CCB) directives.
- ? Developing, reviewing and updating Provisioning Technical Documentation (PTD).
- ? Integrated Logistic Support Plans,

3.4 Test and Evaluation Support

The contractor shall provide engineering and technical support for functionally testing pilot, lead and follow-on ships for new, improved or modified electrical system(s), equipment(s) or component. This includes, but is not limited to:

- ? Developing installation plans,
- ? Developing Test and Evaluation Master Plans (TEMPs),
- ? Formulating testing methodology and developing test procedures for system checkout and integrated plant operation, and
- ? Conducting installation testing in accordance with test plans and test procedures.

3.*5* Installation Support

The contractor shall provide installation support for equipment, system changes and new designs. This support will include, but is not limited to: Ship Alterations (ShipAlts), Machinery Alterations (MachAlts), Alteration Improvements (A&I s), Temporary Alterations (TempAlts), Prototypes, and Proof of Concepts

- ? Conduct installation planning by:
- ? Providing facilities, equipment, tools and personnel to accomplish installations,
- ? Conducting pre-installation site surveys/ship checks on designated ships to identify situational interference between drawings and specific physical and environmental conditions.
- ? Provide shop facilities to prefabricate parts, components, and assemble material, as feasible, prior to shipping to job site.
- ? Conform to existing shipboard routines regarding cleanliness, personnel conduct, and ship's security and integrity. Adhere to all environmental laws and regulations including federal, state local, Naval, ship and industrial facility.
- ? Maintain all necessary process control sheets in accordance with an approved Quality Assurance Plan.
- ? Provide verification of certification for welders, pipe fitters and all trades requiring certification.
- ? Rehabilitate affected spaces to original or equivalent condition.

Develop and maintain a quality assurance program to support the efforts tasked under this contract.

3.6 New Acquisition Support

The contractor shall provide engineering and technical support for new ship acquisition programs. This support will include, but not limited to:

- ? Early phase ship design support
- ? New ship detail design efforts
- ? Equipment and system specification development
- ? Perform independent analyses and technical studies as required
- ? Perform product reviews as follows:
- ? Ship Specifications Sections
- ? Contract Data Requirement List (CDRL) Reviews
- ? Engineering Drawings

? Equipment Test Reports

4.0 TECHNICAL AND FINANCIAL REPORTS

(a) Progress and Financial Reports: A monthly progress and financial report will be submitted to Contracting Officer's Technical Representative (COR) with a copy to the Contracting Officer and the Technical Point of Contact (TPOC). In addition, a separate report of the number of man-hours charged to the contract will be submitted monthly to the Contracting Officer and the Contracting Officer's Technical Representative (COR).

(b) Technical Reports: Technical reports and conclusions reflecting the work accomplished under each task set fourth will be prepared and delivered to the Government when and in the form required by the Contracting Officer's Representative, in accordance with Contract Data Requirements List (CDRL).

(c) Final Delivery: The delivery date of the last of the above reports is not to be later than the delivery date specified in the CDRLs.

(d) Other Reports: There may be a need for other specific reports, test plans, evaluation reports or documentation created as an integral part of a delivery order under this contract. Report format, contents and delivery requirements will be specified at the time of delivery order issuance.

(e) Delivery Order Status Report: For each delivery order awarded, the contractor will provide a status report which will cite the status and utilization since the last report, the status regarding hours and dollars remaining on the task, percent of completion of the task and any problems anticipated.

(f) Travel Reports: For any remote travel required, the contractor will report the destination, number of travelers, duration of stay, task milestones completed, site points of contact, ship, and hull number visited.

5.0 FACILITIES

5.1 The contractor is required to have a liaison office within commuting distance from Philadelphia, Pa for liaison with appropriate officials and performance of work.

5.2 Facilities are required to have SECERT security clearance and controlled access work areas as specified in the DD 254 for attached hereto. The requirement for maintaining these facilities shall not be construed to mean the government will be obligated to pay any direct costs in connection therewith and further, the contractor shall not be entitled to any direct payment in connection with any personnel set in readiness at or brought to such facility in preparation or in exception of work to be performed under the contract.

6.0 PERSONNEL QUALIFICATIONS

The minimum qualifications for the respective labor categories are as follows.

KEY PERSONNEL

(a) Senior Electrical Engineer: The Senior Electrical Engineer shall have a bachelor's degree in electrical engineering from an accredited college or university. Desire a minimum of ten years experience in the design, operation, maintenance or testing of HM&E equipment. Desire experience in the development of technical documentation utilizing military specifications and standards. Desire knowledge of U.S. Navy organizations, their functions and their responsibility. Minimum of three years supervisory experience.

(b) Senior Mechanical Engineer: The Senior Mechanical Engineer shall have a bachelor's degree in mechanical engineering from an accredited college or university. Desire a minimum of ten years experience in the design, operation, maintenance, or testing of HM&E. Desire experience in the development of technical documentation

utilizing military specifications and standards. Desire knowledge of U.S. Navy organizations, their functions, and their responsibility. Minimum of three years supervisory experience.

(c) Project Engineer: The Project Engineer shall have a bachelor's degree in engineering from an accredited college or university. Desire a minimum of fifteen years experience in the operation, maintenance, and in-service testing of Naval shipboard HM&E equipment. Desire the last five years of this experience be directly related to the SOW. Demonstrated experience managing projects similar in scope, magnitude, and complexity, as those listed in the SOW is mandatory.

(d) Electrical Engineer: The Electrical Engineer shall have a bachelor's degree in electrical engineering from an accredited college or university. Desire a minimum of six years experience in the design, operation, maintenance, or testing of U.S. Naval ship's HM&E equipment. Desire experience in mathematical modeling of, or trending performance of shipboard equipment or systems. Desire experience in the development of technical documentation utilizing military standards and specifications.

(e) Senior Electrical Engineering Technician: The Senior Electrical Engineering Technician should be a graduate of high school, trade, industrial or correspondence school for engineering. Desire ten years of practical experience involving U.S. Navy ships HM&E equipment.

(f) Electrical Engineering Technician: The Electrical Engineering Technician should be a graduate of high school, trade, industrial or correspondence school for engineering. Desire five years of practical experience involving U.S. Navy ships HM&E equipment.

NON KEY PERSONNEL

(g) Program Manager: The Program Director shall have a bachelor's degree in engineering from an accredited college or university. Desire a minimum of fifteen years experience in the operation, maintenance, design, or testing of U.S. Navy ships Hull, Mechanical, and Electrical (HM&E) equipment of which ten years must have been at the program management level. Desire experience with Navy maintenance strategies and Navy maintenance systems. Desire detailed knowledge of U.S. Navy organizations, their functions, and their responsibilities.

(h) Senior Project Engineer: The Senior Project Engineer shall have a bachelor's degree in engineering from an accredited college or university. Desire a minimum of fifteen years experience in the operation, maintenance, and in-service testing of Naval shipboard HM&E equipment. Desire the last five years of this experience must be directly related to the SOW. Demonstrated experience managing projects similar in scope, magnitude, and complexity, as those listed in the SOW is mandatory. The educational requirements may be satisfied with an additional ten years of experience directly related to shipboard maintenance assessment of condition monitoring programs. This experience should include detailed knowledge of integrated condition assessment systems for shipboard equipment condition monitoring, including implementation and operation of computerized on-line diagnostic modules used with these systems.

(i) Systems Analyst: The System Analyst shall have a bachelor's degree from an accredited college or university. Desire a minimum of six years experience in tasks directly related to the SOW. Desire this experience to include three years of machinery condition assessment and equipment condition monitoring, utilizing diagnostic systems related to the SOW. The educational requirements may be satisfied with an additional eight years of experience directly related to shipboard maintenance assessment and condition monitoring problems.

(j) Mechanical Engineer: The Mechanical Engineer shall have a bachelor's degree in mechanical engineering from an accredited college or university. Desire a minimum of six years experience in the design, operation, maintenance or testing of U.S. Navy ships HM&E equipment. Desire experience in mathematical modeling of, or trending performance of shipboard equipment or systems. Desire experience in the development of technical documentation utilizing military standards and specifications.

(k) Computer Scientist: The Computer Scientist shall have a bachelor's degree in computer science or software engineering from an accredited college or university. Desire ten years experience in tasks directly related to the

SOW. Desire this experience to include five years of machinery condition assessment and equipment condition monitoring, utilizing computerized, on-line diagnostic systems directly related to the SOW.

(l) Senior Logistician: The Senior Logistician should have a bachelor's degree from an accredited college or university or be a graduate of military schools which have provided an in-depth knowledge of naval shipboard systems maintenance and operation. Desire five years experience demonstrated in the development of Integrated Logistics Support of systems and equipment directly related to the SOW.

(m) Logistician: The Logistician should have a high school diploma and be a graduate of military schools which have provided and in-depth knowledge of naval shipboard systems maintenance and operation. Desire five years experience demonstrated in the development of Integrated Logistics Support of systems and equipment directly related to the SOW.

(n) Configuration Management Specialist: The Configuration Management Specialist should have a high school diploma and be a graduate of military schools which have provided an in-depth knowledge of naval shipboard systems maintenance and operation. Desire five years experience with the use and development of Configuration Management Plans of systems and equipment directly related to the Statement of Work (SOW).

(o) Engineering Technician: The Engineering Technician should be a graduate of high school, trade, industrial or correspondence school for engineering. Desire six years of practical experience involving U.S. Navy ships HM&E equipment.

(p) Draftsman: The Draftsman must have five years practical experience in graphic arts and a demonstrated knowledge of graphic production equipment.

(q) Word Processor: The Word Processor shall be a high school graduate or equivalent, must have three years experience in word processing, data entry, formatting, and operation of word processing equipment, must have two years experience in use of spreadsheet software and basic database setup, and must have formalized word processing software utilization.

(r) Secretary: The Secretary shall be a high school graduate or equivalent with five years experience and must be able to perform office work in support of the Program.

NOTE: * - Denotes KEY Personnel.

7.0 SECURITY REQUIREMENTS

The highest level of security required under this contract is SECRET as designated on the DD Form 254 to this contract. The Contractor is responsible for acquiring, and maintaining security clearances at the level(s) required under this contract. The Director of Industrial Security, Defense Investigative Service, NSWCCD is the point-of-contact regarding security matters.